



Beams Division
NuMI Project

NuMI PROJECT at FERMILAB
NuMI UNDERGROUND ENTRY
DURING INSTALLATION ACTIVITIES
Via MI-65 and MINOS Service Buildings

September 16, 2003

Version 0

GENERAL REQUIREMENTS

1. In order to qualify for entry to underground areas, the individual must be trained (Fermilab Course #FN000368) or escorted into underground areas, as a "visitor", in accord with the requirements of this document.
2. Entrants must wear sturdy-type work boots that covers the ankle, long pants, sleeved shirt (no tank-tops), safety glasses and a hard hat and have a flashlight on their person to qualify for entry. Additional PPE may be required for specific work or inspection activities.
3. All entrants, either trained or untrained, must acquaint themselves with the current conditions or state of installation activities in the underground area to be accessed as they pertain to their personal safety prior to entry. Such information is communicated through the pre-shift daily work planning meetings held by the MI-65 and MINOS Floor Managers and attended by all personnel working on the site that day. Floor managers will also maintain a daily information board in the entry control area to communicate essential information relating to the work occurring that day. Other entrants, outside of the daily installation workforce, shall contact the NuMI Project Safety Coordinator or the NuMI Project Installation Coordinator or designees prior to entry to receive a briefing of the work and hazards for that day.
4. Entrants must first gain entry to a locked entry control area. Having entered the entry control area, entrants must "Check In" before they proceed to enter the underground area via an entry way. The "Check In" process involves removing an entry pass card from the entry control panel and replacing it with the entrant's Fermilab ID card. For entrants not having a Fermilab ID in their possession, a provided temporary badge may substitute when completely filled out by the entrant.
5. If there are insufficient entry pass cards available at time of 'Check In', entrant(s) are prohibited from proceeding to the underground area. The occupancy of underground areas is limited and controlled at any given time by the number of entry pass cards available at the entry control panel.
6. Entrants must have their acquired entry pass card in their physical possession at all times while in entry ways or underground areas.

7. The “Two Person Rule” applies to entry and occupancy in underground areas. Simply stated, an individual should always be accompanied by another individual, within sight or hearing of each other. A single individual may enter the underground area if joining two or more individuals already in the area of destination. At no time may a single individual be left alone in a particular area of the underground enclosure.
8. Entrants must immediately “Check Out” at the entry control area as they egress the underground area and its entry way. The “Check Out” process involves removing the entrant’s Fermilab ID card from the entry control panel and replacing it with the entry pass card.
9. Generally, entrants should egress from the enclosure at the point of entry. If entrants egresses the underground area from a different location than entered, the entrant must immediately proceed to the entry point to “Check Out”.
10. Control of entry to and occupancy limits for the upstream region of the Carrier Tunnel are not within the scope of this document but are, nonetheless, procedurally controlled.

DEFINITIONS

Entry Control Areas are gated or walled areas from which there is free access to the shaft elevators. Entry to the entry control area is through normally locked barriers that can be opened by a special entry key. This key is provided to the potential entrant upon completion of training. The barrier is realized by a single fenced gate at MI-65 and by two separate doors at MINOS. The entry control panel is mounted within the entry control area.

The **Entry Control Panel** is the physical point of “Check In” and “Check Out”. This panel is the repository for entry pass cards and, as they are removed, the entrant’s Fermilab ID card. Temporary entrant ID cards are available at the panel for those who do not have a Fermilab ID card.

The **Underground Area** includes all below grade space between the mid-point of the Carrier Tunnel and the downstream end of the MINOS near detector experimental hall and their defined entry ways. For purposes of entry control, the underground area is divided into two separate areas that are separately referred to as the MI-65 Underground Area and the MINOS Underground Area.

The **MI-65 Underground Area** includes the downstream portion of the Carrier Tunnel, Pre-Target enclosure, Pre-Target safe passageway, MI-65 shaft and shaft elevator, MI-65 access stairwell, access labyrinth, utility labyrinth, shaft and elevator landing area, the Target Hall support rooms for the Horn power supply and RAW systems, Target Hall, and the upstream end of the Decay Pipe passageway.

The **MINOS Underground Area** includes the downstream end of the Decay Pipe passageway, Absorber Hall, Absorber bypass tunnel, Absorber access tunnel, Muon alcoves, MINOS shaft and shaft elevators, shaft and elevator landing areas, MINOS access tunnel, MINOS Hall, and the safe passageway between MINOS shaft and the downstream end of the MINOS Hall.

Underground entry ways include the elevator and stairwell at the MI-65 Service Building, and the main elevator at the MINOS Service Building. Entry ways also include the use of man baskets at both the MI-65 and MINOS shafts. Entry via the MI-65 stairwell is by means of an external door on the east side of the service building. This door is normally locked and can be

opened with the same key that gains entry to the controlled entry areas. The emergency elevator at the MINOS Service Building is a reserved entry way for emergency personnel only.

Egress ways are normally the elevators at the MI-65 and MINOS shafts. The 125 foot shaft stairway at MI-65 is also an egress way, though physically challenging. The Decay Pipe passageway and the upstream end of the Carrier Tunnel are not normally considered as egress ways. Their potential use in an emergency is discussed in training.

Occupancy Limits during installation activity are defined as a maximum of fifty (50) entrants for the MI-65 underground area and twenty-four (24) entrants for the MINOS underground area. Additionally, the downstream portion of the Carrier Tunnel has a maximum of four (4) entrants. Occupancy limits do not include responding emergency personnel.

ESCORT REQUIREMENTS

Visitors or untrained individuals may be escorted into the underground area by trained entrants (escorts) subject to the following requirements:

1. The knowledge and consent of the NuMI Project Safety Coordinator or the NuMI Project Installation Coordinator is necessary. The Safety Coordinator is considered the primary contact and the Installation Coordinator the secondary contact. Designated deputies or alternates may fulfill this role in the absence of the Safety or Installation Coordinator.
2. The NuMI Project Safety Coordinator or the NuMI Project Installation Coordinator may indicate a specific trained entrant as a qualified escort for a particular entry of untrained individual(s).
3. No more than two (2) visitors may accompany the escort at any one time. All visitors must remain with their escort throughout the entry.
4. The visitor must review and sign a Hazard Analysis for Visitors prior to entry of underground areas.
5. The visitor shall receive field training in the use of the self rescuer prior to entry of underground areas.
6. The visitor must adhere to the General Requirements section of this document.
7. Permission for escorted entry may be limited to a single entry, a limited number of multiple entries, or a limited number of calendar days not to exceed two (2) at the discretion of the Safety Coordinator or the Installation Coordinator.

COMPLIANCE

Compliance with the requirements of this document is expected of all entrants to underground areas. Compliance may be verified at any time by the NuMI Project Safety Coordinator, his designee, Field Safety Coordinator, Installation Coordinator, Project Engineers, Floor Managers, Task Managers or Technical Group Leaders. Entrants found not to be in compliance will be required to immediately exit the underground area. Non-compliance will be reported to the violator's line management and the NuMI Project Safety Coordinator. Repeated violations have the potential consequence of exclusion from underground areas and/or disciplinary action.